Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-28.   (Canceled)

29.   (Currently Amended)   A method of confirming ownership of an address by a first device to a second device, the method comprising:

(a)   identifying a number of identifications allowed;

(b)   identifying a secret value at a first device, wherein the number of identifications allowed is based on a maximum number of times the secret value may be used before the secret value is changed;

(c)   calculating a first address value based on the identified secret value and the identified number of identifications allowed;

(d)   generating an address as a concatenation of a second address value and the calculated first address value;

(e)   sending the generated address from the first device to a second device;

(f)   receiving a request to confirm ownership of the generated address from the second device at the first device;

(g)   identifying a number of confirmations previously performed between the first device and the second device;

(h)   calculating a first value based on the identified secret value and the identified number of confirmations performed; and

(i)   sending a first message from the first device to the second device, the first message including the calculated first value so that the second device can confirm ownership of the generated address by the first device.

30.   (Previously Presented)   The method of claim 29, further comprising receiving a router advertisement message including an address prefix, wherein the second address value comprises the address prefix.

31.   (Previously Presented) The method of claim 29, further comprising repeating (f), (g), (h), (i).

32.   (Previously Presented) The method of claim 31, wherein the first message further includes the identified number of confirmations performed.

33.   (Currently Amended) The method of claim 29, further comprising:

(j)   comparing the identified number of confirmations performed with the ~~defined~~ identified number of identifications allowed; and

(k)   based on an outcome of the comparison, identifying a second secret value at the first device.

34.   (Previously Presented) The method of claim 33, further comprising repeating (c)-(i) replacing the identified secret value with the identified second secret value.

35.   (Previously Presented) The method of claim 29, wherein the first message comprises a binding update message sent using a mobile Internet protocol version 6 protocol.

36.   (Currently Amended) A communication device, the communication device comprising:

a processor;

a communication interface operably coupled to the processor; and

a computer-readable medium including computer-readable instructions stored therein that, upon execution by the processor, perform operations comprising

(a)   identifying a number of identifications allowed;

(b)   identifying a secret value, <u>wherein the number of identifications allowed is based on a maximum number of times the secret value may be used before the secret value is changed</u>;

(c)   calculating a first address value based on the identified secret value and the identified number of identifications allowed;

(d)   generating an address as a concatenation of a second address value and the calculated first address value;

(e)   sending the generated address to a second device via the communication interface;

(f)   receiving a request to confirm ownership of the generated address from the second device via the communication interface;

(g)   identifying a number of confirmations previously performed between the communication device and the second device;

(h)   calculating a first value based on the identified secret value and the identified number of confirmations performed; and

(i)   sending a first message to the second device via the communication interface, the first message including the calculated first value so that the second device can confirm ownership of the generated address.

37.   (Currently Amended) The communication device of claim 36, ~~further comprising~~ wherein the operations further comprise receiving a router advertisement message including an address prefix, wherein the second address value comprises the address prefix.

38.   (Previously Presented) The communication device of claim 36, wherein the operations further comprise repeating (f), (g), (h), (i).

39.   (Previously Presented) The communication device of claim 38, wherein the first message further includes the identified number of confirmations performed.

40.   (Currently Amended) The communication device of claim 36, wherein the operations further comprise:

(j)   comparing the identified number of confirmations performed with the defined number of identifications allowed; and

(k)   based on an outcome of the comparison, identifying a second secret value at the ~~first device~~ communication device.

41.   (Previously Presented) The communication device of claim 36, wherein the first message comprises a binding update message sent using a mobile Internet protocol version 6 protocol.

-4-

42.   (Currently Amended) A computer-readable medium including computer-readable instructions that, upon execution by a processor, cause the processor to calculate information that confirms ownership of an address by a first device to a second device, the instructions configured to cause a computing device to:

(a)   identify a number of identifications allowed;

(b)   identify a secret value, wherein the number of identifications allowed is based on a maximum number of times the secret value may be used before the secret value is changed;

(c)   calculate a first address value based on the identified secret value and the identified number of identifications allowed;

(d)   generate an address as a concatenation of a second address value and the calculated first address value;

(e)   send the generated address to a second device;

(f)   receive a request to confirm ownership of the generated address from the second device;

(g)   identify a number of confirmations previously performed between a first device and the second device;

(h)   calculate a first value based on the identified secret value and the identified number of confirmations performed; and

(i)   send a first message to the second device, the first message including the calculated first value so that the second device can confirm ownership of the generated address.

43.   (Currently Amended) The computer-readable medium of claim 42, ~~further comprising receiving~~ wherein the instructions are further configured to cause the computing device to receive a router advertisement message including an address prefix, wherein the second address value comprises the address prefix.

44.   (Currently Amended) The computer-readable medium of claim 42, wherein the instructions ~~further comprise repeating~~ are further configured to cause the computing device to repeat (f), (g), (h), (i).

45.   (Previously Presented) The computer-readable medium of claim 44, wherein the first message further includes the identified number of confirmations performed.

46.   (Currently Amended) The computer-readable medium of claim 42, wherein the instructions ~~further comprise~~ are further configured to cause the computing device to:

(j)   ~~comparing~~ compare the identified number of confirmations performed with the ~~defined~~ identified number of identifications allowed; and

(k)   based on an outcome of the comparison, ~~identifying~~ identify a second secret value.

47.   (Previously Presented) The computer-readable medium of claim 42, wherein the first message comprises a binding update message sent using a mobile Internet protocol version 6 protocol.

48.   (Currently Amended) A method of confirming ownership of an address by a first device to a second device, the method comprising:

(a)   identifying a number of identifications allowed;

(b)   identifying a secret value at a first device, wherein the number of identifications allowed is based on a maximum number of times the secret value may be used before the secret value is changed;

(c)   calculating a first address value based on the identified secret value and the identified number of identifications allowed at the first device;

(d)   generating an address as a concatenation of a second address value and the calculated first address value at the first device;

(e)   sending the generated address from the first device to a second device;

(f)   receiving the generated address from the first device at the second device;

(g)   sending a request to confirm ownership of the generated address from the second device to the first device;

(h)   receiving the request to confirm ownership of the generated address from the second device at the first device;

(i)   identifying a number of confirmations previously performed between the first device and the second device at the first device;

(j)   calculating a first value based on the identified secret value and the identified number of confirmations performed at the first device;

(k)   sending a first message from the first device to the second device, the first message including the calculated first value and the identified number of confirmations performed;

(l)   receiving the first message from the first device at the second device;

(m)   comparing the identified number of confirmations performed with a second number of confirmations performed that is maintained at the second device;

(n)   comparing the calculated first value with a value maintained at the second device; and

(o)   if both comparisons are satisfied, confirming that the first device owns the generated address at the second device.

49.   (Previously Presented) The method of claim 48, further comprising updating the second number of confirmations performed at the second device.

50.   (Previously Presented) The method of claim 48, wherein comparing the calculated first value with the value maintained at the second device comprises:

(p)   calculating a second value by applying a hash function to the calculated first value; and

(q)   comparing the calculated second value with the value maintained at the second device.

51.   (Previously Presented) The method of claim 50, further comprising, after (q), storing the calculated second value at the second device as the value maintained at the second device.

52.   (Previously Presented) The method of claim 48, wherein the first message comprises a binding update message sent using a mobile Internet protocol version 6 protocol.

53.   (Previously Presented) The method of claim 48, further comprising receiving a router advertisement message including an address prefix, before (d), wherein the second address value comprises the address prefix.

54.   (Currently Amended) A system, the system comprising:

a first device, the first device comprising

    a first processor;

    a first communication interface operably coupled to the first processor; and

    a first computer-readable medium including computer-readable instructions stored therein that, upon execution by the first processor, perform operations comprising

        (a)   identifying a number of identifications allowed;

        (b)   identifying a secret value, wherein the number of identifications allowed is based on a maximum number of times the secret value may be used before the secret value is changed;

        (c)   calculating a first address value based on the identified secret value and the identified number of identifications allowed;

        (d)   generating an address as a concatenation of a second address value and the calculated first address value;

        (e)   sending the generated address to a second device via the first communication interface;

        (f)   receiving a request to confirm ownership of the generated address from the second device via the first communication interface;

(g)   identifying a number of confirmations previously performed between the first device and the second device;

(h)   calculating a first value based on the identified secret value and the identified number of confirmations performed; and

(i)   sending a first message to the second device via the first communication interface, the first message including the calculated first value; and

the second device comprising

a second processor;

a second communication interface operably coupled to the second processor; and

a second computer-readable medium including computer-readable instructions stored therein that, upon execution by the second processor, perform operations comprising

(j)   receiving the generated address from the first device;

(k)   sending the request to confirm ownership of the generated address to the first device;

(l)   receiving the first message from the first device;

(m)   comparing the identified number of confirmations performed with a second number of confirmations performed that is maintained at the second device;

(n)   comparing the calculated first value with a value maintained at the second device; and

(o)   if both comparisons are satisfied, confirming that the first device owns the generated address.

55.   (Previously Presented) The system of claim 54, wherein the second computer-readable medium further performs operations comprising updating the second number of confirmations performed.

56.   (Previously Presented) The system of claim 54, wherein comparing the calculated first value with the value maintained at the second device comprises:

(p)   calculating a second value by applying a hash function to the calculated first value; and

(q)   comparing the calculated second value with the value maintained at the second device.

57.   (Previously Presented) The system of claim 56, wherein the second computer-readable medium further performs operations comprising, after (q), storing the calculated second value as the value maintained at the second device.

58.   (Previously Presented) The system of claim 54, wherein the first message comprises a binding update message sent using a mobile Internet protocol version 6 protocol.

59.   (Previously Presented) The system of claim 54, wherein the second computer-readable medium further performs operations comprising, before (d), receiving a router advertisement message including an address prefix, wherein the second address value comprises the address prefix.

60.   (Currently Amended) Computer-readable media including computer-readable instructions that, upon execution by a first device and a second device, enable the first device to prove ownership of an address to the second device, the instructions configured to cause the first device and the second device to:

(a)   identify a number of identifications allowed;

(b)   identify a secret value at a first device, wherein the number of identifications allowed is based on a maximum number of times the secret value may be used before the secret value is changed;

(c)   calculate a first address value based on the identified secret value and the identified number of identifications allowed at the first device;

(d)   generate an address as a concatenation of a second address value and the calculated first address value at the first device;

(e)   send the generated address from the first device to a second device;

(f)   receive the generated address from the first device at the second device;

(g)   send a request to confirm ownership of the generated address from the second device to the first device;

(h)   receive the request to confirm ownership of the generated address from the second device at the first device;

(i)   identify a number of confirmations previously performed between the first device and the second device at the first device;

(j)   calculate a first value based on the identified secret value and the identified number of confirmations performed at the first device;

(k)   send a first message from the first device to the second device, the first message including the calculated first value and the identified number of confirmations performed;

(l)   receive the first message from the first device at the second device;

(m)   compare the identified number of confirmations performed with a second number of confirmations performed that is maintained at the second device;

(n)   compare the calculated first value with a value maintained at the second device; and

(o)   if both comparisons are satisfied, confirm that the first device owns the generated address at the second device.

61.   (Currently Amended) The computer-readable media of claim 60, ~~further comprising updating~~ wherein the instructions are further configured to cause the first device to update the second number of confirmations performed at the second device.

62.   (Previously Presented) The computer-readable media of claim 60, wherein comparing the calculated first value with the value maintained at the second device comprises:

(p)   calculating a second value by applying a hash function to the calculated first value; and

(q)   comparing the calculated second value with the value maintained at the second device.

63.   (Currently Amended) The computer-readable media of claim 62, ~~further comprising~~ wherein the instructions are further configured to cause the second device to, after (q), ~~storing~~ store the calculated second value at the second device as the value maintained at the second device.

64.   (Previously Presented) The computer-readable media of claim 60, wherein the first message comprises a binding update message sent using a mobile Internet protocol version 6 protocol.

65.   (Currently Amended) The computer-readable media of claim 60, ~~further comprising receiving~~ wherein the instructions are further configured to cause the second device to receive a router advertisement message including an address prefix, before (d), wherein the second address value comprises the address prefix.

66.   (Currently amended) A method of confirming ownership of an address by a first device to a second device, the method comprising:

identifying a plurality of random integers, wherein the plurality of random integers are less than a defined maximum;

identifying a plurality of random bits associated with the plurality of random integers;

calculating a plurality of random values ~~using the identified plurality of random bits and the identified plurality of random integers,~~ by solving the equation

$$v_i = (-1)^{b_i} \cdot (s_i^2)^{-1} \bmod n \text{ for } 1 < i < k, \text{ where } v_i \text{ is the plurality of random values, } b_i \text{ is the}$$

identified plurality of random bits, s_i is the identified plurality of random integers, n is the defined maximum value, and k is a security parameter;

calculating a first address value based on the calculated plurality of random values;

generating an address as a concatenation of a second address value and the calculated first address value;

calculating a first value based on a first random integer;

providing the generated address and the calculated first value to a second device;

receiving a request to confirm ownership of the generated address from the second device at a first device, the request including a plurality of bit values;

calculating a second value based on the received plurality of bit values, the defined maximum value, and the identified plurality of random integers; and

sending a first message from the first device to the second device, the first message including the calculated second value, the calculated plurality of random values, and the defined maximum value so that the second device can confirm ownership of the generated address by the first device.

67.   (Previously Presented) The method of claim 66, wherein calculating the first address value comprises applying a hash function to the calculated plurality of random values.

68.   (Canceled)

69.   (Previously Presented) The method of claim 66, wherein calculating the first value comprises solving the equation $x = (-1)^{b} \cdot (r^{2}) \mod n$, where x is the first value, b is a random bit, and r is the first random integer, and n is the defined maximum value.

70.   (Previously Presented) The method of claim 66, wherein calculating the second value comprises solving the equation $y = r * \prod e_j s_j \mod n$ for $1 < j < k$, where y is the second value, r is the first random integer, e_j is the received plurality of bit values, s_j is the plurality of random integers, and n is the defined maximum value.

71.   (Currently amended) A communication device, the communication device comprising:

a processor;

a communication interface operably coupled to the processor; and

a computer-readable medium including computer-readable instructions stored therein that, upon execution by the processor, perform operations comprising

identifying a plurality of random integers, wherein the plurality of random integers are less than a defined maximum value;

-13-

identifying a plurality of random bits associated with the plurality of random integers;

calculating a plurality of random values ~~using the identified plurality of random bits and the identified plurality of random integers,~~ by solving the equation $v_i = (-1)^{b_i} \cdot (s_i^2)^{-1} \bmod n$ for $1 < i < k$, where v_i is the plurality of random values, b_i is the identified plurality of random bits, s_i is the identified plurality of random integers, n is the defined maximum value, and k is a security parameter;

calculating a first address value based on the calculated plurality of random values;

generating an address as a concatenation of a second address value and the calculated first address value;

calculating a first value based on a first random integer;

providing the generated address and the calculated first value to a second device;

receiving a request to confirm ownership of the generated address from the second device, the request including a plurality of bit values;

calculating a second value based on the received plurality of bit values, the defined maximum value, and the identified plurality of random integers; and

sending a first message to the second device, the first message including the calculated second value, the calculated plurality of random values, and the defined maximum value so that the second device can confirm ownership of the generated address by the communication device.

72.   (Previously Presented) The communication device of claim 71, wherein calculating the first address value comprises applying a hash function to the calculated plurality of random values.

73.   (Canceled)

-14-

74.　(Previously Presented)　The communication device of claim 71, wherein calculating the first value comprises solving the equation $x = (-1)^b \cdot (r^2) \mod n$, where x is the first value, b is a random bit, and r is the first random integer, and n is the defined maximum value.

75.　(Previously Presented)　The communication device of claim 71, wherein calculating the second value comprises solving the equation $y = r * \prod e_j s_j \mod n$ for $1 < j < k$, where y is the second value, r is the first random integer, e_j is the received plurality of bit values, s_j is the plurality of random integers, and n is the defined maximum value.

76.　(Currently amended)　A computer-readable medium including computer-readable instructions that, upon execution by a processor, cause the processor to calculate information that confirms ownership of an address by a first device to a second device, the instructions configured to cause a computing device to:

identify a plurality of random integers, wherein the plurality of random integers are less than a defined maximum value;

identify a plurality of random bits associated with the plurality of random integers;

calculate a plurality of random values ~~using the identified plurality of random bits and the identified plurality of random integers,~~ by solving the equation $v_i = (-1)^{b_i} \cdot (s_i^2)^{-1} \mod n$ for $1 < i < k$, where v_i is the plurality of random values, b_i is the identified plurality of random bits, s_i is the identified plurality of random integers, n is the defined maximum value, and k is a security parameter;

calculate a first address value based on the calculated plurality of random values;

generate an address as a concatenation of a second address value and the calculated first address value;

calculate a first value based on a first random integer;

provide the generated address and the calculated first value to ~~a second~~ the second device;

receive a request to confirm ownership of the generated address from the second device, the request including a plurality of bit values;

calculate a second value based on the received plurality of bit values, the defined maximum value, and the identified plurality of random integers; and

send a first message to the second device, the first message including the calculated second value, the calculated plurality of random values, and the defined maximum value so that the second device can confirm ownership of the generated address.

77. (Previously Presented) The computer-readable medium of claim 76, wherein calculating the first address value comprises applying a hash function to the calculated plurality of random values.

78. (Canceled)

79. (Previously Presented) The computer-readable medium of claim 76, wherein calculating the first value comprises solving the equation $x = (-1)^b \cdot (r^2) \mod n$, where x is the first value, b is a random bit, and r is the first random integer, and n is the defined maximum value.

80. (Previously Presented) The computer-readable medium of claim 76, wherein calculating the second value comprises solving the equation $y = r * \prod e_j s_j \mod n$ for $1 < j < k$, where y is the second value, r is the first random integer, e_j is the received plurality of bit values, s_j is the plurality of random integers, and n is the defined maximum value.

81. (Currently amended) A method of confirming ownership of an address by a first device to a second device, the method comprising:

identifying a plurality of random integers at a first device, wherein the plurality of random integers are less than a defined maximum value;

identifying a plurality of random bits associated with the plurality of random integers at the first device;

calculating a plurality of random values ~~using the identified plurality of random bits and the identified plurality of random integers,~~ by solving the equation

-16-

$$v_i = (-1)^{b_i} \cdot (s_i^2)^{-1} \bmod n \text{ for } 1 \le i \le k, \text{ where } v_i \text{ is the plurality of random values, } b_i \text{ is the identified plurality of random bits, } s_i \text{ is the identified plurality of random integers, } n \text{ is the defined maximum value, and } k \text{ is a security parameter};$$

calculating a first address value based on the calculated plurality of random values at the first device;

generating an address as a concatenation of a second address value and the calculated first address value at the first device;

calculating a first value based on a first random integer at the first device;

sending the generated address and the calculated first value from the first device to a second device;

receiving the generated address and the calculated first value from the first device at the second device;

sending a request to confirm ownership of the generated address from the second device to the first device, the request including a plurality of bit values;

receiving the request to confirm ownership of the generated address from the second device at the first device;

calculating a second value based on the received plurality of bit values, the defined maximum value, and the identified plurality of random integers at the first device;

sending a first message from the first device to the second device, the first message including the calculated second value, the calculated plurality of random values, and the defined maximum value;

receiving the first message from the first device at the second device;

comparing the received plurality of random values with the received address at the second device;

calculating a third value based on the received second value, the received plurality of random values, and the received maximum value at the second device;

comparing the calculated third value with the received first value at the second device; and

if both comparisons are satisfied, confirming that the first device owns the generated address at the second device.

82.   (Previously Presented) The method of claim 81, wherein comparing the received plurality of random values with the received address at the second device comprises:

(p)   calculating a fourth value by applying a hash function to the received plurality of random values; and

(q)   comparing the calculated fourth value with a suffix of the received address.

83.   (Previously Presented) The method of claim 81, wherein calculating the third value comprises solving the equation $z = y^2 * \prod v_j^{e_j} \bmod n$ for $1 < j < k$, where z is the third value, y is the received second value, v_j is the received plurality of random values, e_j is the plurality of bit values, and n is the received maximum value.

84.   (Currently amended) A system, the system comprising:

a first device, the first device comprising

a first processor;

a first communication interface operably coupled to the first processor; and

a first computer-readable medium including computer-readable instructions stored therein that, upon execution by the first processor, perform operations comprising

identifying a plurality of random integers, wherein the plurality of random integers are less than a defined maximum value;

identifying a plurality of random bits associated with the plurality of random integers;

calculating a plurality of random values ~~using the identified plurality of random bits and the identified plurality of random integers,~~ by solving the equation $v_i = (-1)^{b_i} \cdot (s_i^2)^{-1} \bmod n$ for $1 < i < k$, where v_i is the plurality of random values, b_i is the

-18-

identified plurality of random bits, s_i is the identified plurality of random integers, n is the defined maximum value, and k is a security parameter;

calculating a first address value based on the calculated plurality of random values;

generating an address as a concatenation of a second address value and the calculated first address value;

calculating a first value based on a first random integer;

sending the generated address and the calculated first value to a second device via the first communication interface;

receiving a request to confirm ownership of the generated address from the second device via the first communication interface, the request including a plurality of bit values;

calculating a second value based on the received plurality of bit values, the defined maximum value, and the identified plurality of random integers; and

sending a first message to the second device via the first communication interface; and

the second device comprising

a second processor;

a second communication interface operably coupled to the second processor; and

a second computer-readable medium including computer-readable instructions stored therein that, upon execution by the second processor, perform operations comprising

receiving the generated address and the calculated first value from the first device via the second communication interface;

sending the request to confirm ownership of the generated address to the first device via the second communication interface;

receiving the first message from the first device via the second communication interface, the first message including the calculated second value, the calculated plurality of random values, and the defined maximum value;

comparing the received plurality of random values with the received address;

calculating a third value based on the received second value, the received plurality of random values, and the received maximum value;

comparing the calculated third value with the received first value; and

if both comparisons are satisfied, confirming that the first device owns the generated address.

85. (Previously Presented) The system of claim 84, wherein comparing the received plurality of random values with the received address comprises:

(p) calculating a fourth value by applying a hash function to the received plurality of random values; and

(q) comparing the calculated fourth value with a suffix of the received address.

86. (Previously Presented) The system of claim 84, wherein calculating the third value comprises solving the equation $z = y^2 * \prod v_j^{e_j} \bmod n$ for $1 \leq j < k$, where z is the third value, y is the received second value, v_j is the received plurality of random values, e_j is the plurality of bit values, and n is the received maximum value.

87. (Currently amended) Computer-readable media including computer-readable instructions that, upon execution by a first device and a second device, enable the first device to prove ownership of an address to the second device, the instructions configured to cause the first device and the second device to:

identify a plurality of random integers at a first device, wherein the plurality of random integers are less than a defined maximum value;

identify a plurality of random bits associated with the plurality of random integers at the first device;

calculate a plurality of random values ~~using the identified plurality of random bits and the identified plurality of random integers~~, <u>by solving the equation</u> $v_i = (-1)^{b_i} \cdot (s_i^2)^{-1} \bmod n$

<u>for $1 < i < k$, where v_i is the plurality of random values, b_i is the identified plurality of random bits, s_i is the identified plurality of random integers, n is the defined maximum value, and k is a security parameter;</u>

calculate a first address value based on the calculated plurality of random values at the first device;

generate an address as a concatenation of a second address value and the calculated first address value at the first device;

calculate a first value based on a first random integer at the first device;

send the generated address and the calculated first value from the first device to a second device;

receive the generated address and the calculated first value from the first device at the second device;

send a request to confirm ownership of the generated address from the second device to the first device, the request including a plurality of bit values;

receive the request to confirm ownership of the generated address from the second device at the first device;

calculate a second value based on the received plurality of bit values, the defined maximum value, and the identified plurality of random integers at the first device;

send a first message from the first device to the second device, the first message including the calculated second value, the calculated plurality of random values, and the defined maximum value;

receive the first message from the first device at the second device;

compare the received plurality of random values with the received address at the second device;

-21-

calculate a third value based on the received second value, the received plurality of random values, and the received maximum value at the second device;

compare the calculated third value with the received first value at the second device; and

if both comparisons are satisfied, confirm that the first device owns the generated address at the second device.

88. (Previously Presented) The computer-readable media of claim 87, wherein comparing the received plurality of random values with the received address comprises:

(p) calculating a fourth value by applying a hash function to the received plurality of random values; and

(q) comparing the calculated fourth value with a suffix of the received address.

89. (Previously Presented) The computer-readable media of claim 87, wherein calculating the third value comprises solving the equation $z = y^2 * \prod v_j^{e_j} \bmod n$ for $1 < j < k$, where z is the third value, y is the received second value, v_j is the received plurality of random values, e_j is the plurality of bit values, and n is the received maximum value.